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# **EVALUATION OF THE COEFFICIENT ACCOUNTING OF ASSIMILATIVE PROPERTIES OF NATURAL ZONES OF UKRAINE FOR THE DIFFERENTIATION OF RATES OF ECOLOGICAL RENT TAX**

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For evaluate of the fair size of a payment for use by economic entities of the assimilative potential of the nature (or services of ecosystems) it is expedient to evaluate it through an estimation of the ecological rent [1] which is appropriated now by users of natural resources. The author has named this payment – the ecological rent tax (payment). For its differentiation it is expedient to evaluate coefficient of the account of assimilative properties of natural zones of Ukraine, and also for an establishment of rates of the ecological tax when the base of the taxation will be changed. This theme is also actual as in a control system of an environmental safety more and more than attention it is paid to its regionalization.

The purpose of this scientific research is to contribute to improvement of a condition of an environment by an establishment of the valid payment for used by users of natural resources the assimilative potential of an environment, differentiating it by means of an establishment of the coefficient of the account of assimilative properties of natural zones of Ukraine.

The ecological capital of different natural zones forms and the differentiated ecological rent. For differentiation of rates of the ecological tax on a rent basis expedient there is an evaluation of the coefficient of the account of assimilative properties of natural zones of Ukraine. One of criteria of an evaluation of cost of the assimilative potential of an environment will be a belong of the enterprises to natural zones (the account of assimilative properties of natural zones of Ukraine), including depending on development of an organic life in soil and water bodies. In

calculations it is expedient to evaluate the corresponding coefficient. In Ukraine there are the following natural zones: mixed (coniferous and deciduous) woods, forest-steppe, steppe, the Ukrainian Carpathians, Crimean mountains, and also water areas of the Black and Azov seas. The UNESCO in 2014 has confirmed a belong of Crimea to Ukraine.

By scientists it is certain, that woods (among them – tropical) have the greatest assimilative potential. The high assimilative potential forests of temperate latitudes have, wetlands, ecological systems of deltas. Low assimilative potential characteristic for tundra, deserts, semideserts. Thus, if to take for coefficient of the lowest level of the assimilative potential desert or tundra (0,1), and the highest – a tropical forest (1,0) in Ukraine the corresponding coefficient of natural zones will change within the limits of: from 0,4 up to 0,8 (table 1). In Ukraine it is expedient to consider natural zones of all natural zones of the Earth as industrial activity can lead to desertification of territories even with high assimilative potential of an environment, and about this a number of scientific articles (for the decision of these problems and the prevention of desertification of territories it is expedient to implement to corresponding legal documents of position of “The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)”) is already written. Possible also more detailed division of natural zones: for example, woods – on coniferous, deciduous, mixed, etc. (table 2).

Thus, for northern administrative regions of Ukraine coefficients will make from 0,6 up to 0,8; for central – 0,4-0,6. It means, that northern and central administrative regions of Ukraine are in natural zones with mainly high and an average level of the assimilative potential of an environment.

Northern and central regions of Ukraine are located in a southwest of the East European Plain and are in a mixed-wood coniferous-deciduous damp, moderate-warm zone (a significant part of Zhytomyr, Kyiv, Chernihiv, Sumy regions); forest-steppe damp (in the West) and to the insufficiently humidified warm zone (a part of Zhytomyr, Kyiv, Chernihiv, Poltava, Sumy, Khmelnytsky, Vinnytsia, Cherkasy regions and an insignificant part of the Kirovograd region) and steppe droughty very warm zone (a prevailing part of the Kirovograd region and a part of the Poltava region). That is these administrative regions are in three natural zones of Ukraine, except for the Ukrainian Carpathians and Crimean mountains. The

corresponding parameters can be used and for other administrative regions of Ukraine which are in these natural zones.

Table 1 - The coefficient of the account of assimilative properties of natural areas of Ukraine for evaluate of rates of the ecological rent tax and differentiation of the ecological rent

Natural area	The coefficient of the account of assimilative properties of natural areas (ecosystem services)
Mixed (coniferous and deciduous) forests	0,8
Forest-Steppe	0,6
Steppe	0,4
Ukrainian Carpathian Mountains	0,6
Crimean Mountains <sup>1</sup>	0,4
The water area of the Black Sea	0,7
Aquatoria of the Azov Sea	0,7

Source: It is made by author Suhinoyu O.M. by own calculations and according to geographical maps “Physico-geographical regionalization of the world” and “Physico-geographical division into districts of Ukraine” [2].

Table 2 - The coefficient of the account of assimilative properties of natural areas in the rate of the ecological rental tax for administrative regions of Ukraine (on an example of the Sumy region)

Geographical regions
1. [5] Novgorod-Seversky Polesie (Polesie Province of mixed coniferous-forest-wide-moist, warm moderately zone (0,8));
2. [20] North Poltava region high (Left-Bank Dnepr forest-steppe steppe province wet (in the west) and not humidified warm zone (0,6));
3. [23] Sums slope-highland region (Middle wet forest-steppe steppe province (in the west) and not humidified warm zone (0,6));
4. [22] East Poltava region high (Left-Bank Dnepr forest-steppe steppe province wet (in the west) and not humidified warm zone (0,6)).

Source: Compiled by author Suhinoyu O.M. by own calculations and according to a geographical map “Physico-geographical zoning Ukraine” [2].

<sup>1</sup>The UNESCO in 2014 has confirmed a belong of Crimea to Ukraine.

*Notes:* \* Physico-geographical areas are put down in that order, they occupy what area of the region (from the greater area to smaller) (in square brackets there is number of natural area on a geographical map).

Thus, proceeding from calculations and the established sizes of coefficient of the account of assimilative properties of natural zones of Ukraine for differentiation of rates of the ecological rent tax (payment), in Ukraine meanwhile there are natural resources with assimilative properties, but for their recovery it is expedient to enter such payment (in particular, the ecological rent tax) which would allow to improve a state of an environment, and it would be a principle: economy – for environmental protection.

### **References:**

1. Сухіна О.М. Розвиток теорії екологічної ренти та справедливого її розподілу / О.М.Сухіна // Економіка України. – 2014. – № 7. – С. 49–68.
2. Фізико-географічне районування України : географічна карта [Електронний ресурс]. – Режим доступу: <https://www.google.com.ua/search?q=>